ENERGY STAR® Program Requirements for Commercial Dishwashers

Draft 1 Partner Commitments

Commitment

The following are the terms of the ENERGY STAR Partnership Agreement as it pertains to the manufacturing of ENERGY STAR qualified commercial dishwashers. The ENERGY STAR Partner must adhere to the following program requirements:

- comply with current ENERGY STAR Eligibility Criteria, defining the performance criteria that must be met for use of the ENERGY STAR certification mark on commercial dishwashers and specifying the testing criteria for commercial dishwashers. EPA may, at its discretion, conduct tests on products that are referred to as ENERGY STAR qualified. These products may be obtained on the open market, or voluntarily supplied by Partner at EPA's request;

- comply with current ENERGY STAR Identity Guidelines, describing how the ENERGY STAR marks and name may be used. Partner is responsible for adhering to these guidelines and for ensuring that its authorized representatives, such as advertising agencies, dealers, and distributors, are also in compliance;

- qualify at least one ENERGY STAR commercial dishwasher within one year of activating the commercial dishwashers' portion of the agreement. When Partner qualifies the product, it must meet the specification (e.g., Tier 1 or 2) in effect at that time;

- provide clear and consistent labeling of ENERGY STAR qualified commercial dishwashers. The ENERGY STAR mark must be clearly displayed on the top/front of the product, in product literature (i.e., user manuals, spec sheets, etc.), on product packaging, and on the manufacturer's Internet site where information about ENERGY STAR qualified models is displayed;

- provide to EPA, on an annual basis, an updated list of ENERGY STAR qualifying commercial dishwasher models. Once the Partner submits its first list of ENERGY STAR qualified commercial dishwashers, the Partner will be listed as an ENERGY STAR Partner. Partner must provide annual updates in order to remain on the list of participating product manufacturers;

- provide to EPA, on an annual basis, unit shipment data or other market indicators to assist in determining the market penetration of ENERGY STAR. Specifically, Partner must submit the total number of ENERGY STAR qualified commercial dishwashers shipped (in units by model) or an equivalent measurement as agreed to in advance by EPA and Partner. Partner is also encouraged to provide ENERGY STAR qualified unit shipment data segmented by meaningful product characteristics (e.g., capacity, size, speed, or other as relevant), total unit shipments for each model in its product line, and percent of total unit shipments that qualify as ENERGY STAR. The data for each calendar year should be submitted to EPA, preferably in electronic format, no later than the following March and may be provided directly from the Partner or through a third party. The data will be used by EPA only for program evaluation purposes and will be closely controlled. If requested under the Freedom of Information Act (FOIA), EPA will argue that the data is exempt. Any information used will be masked by EPA so as to protect the confidentiality of the Partner;

- notify EPA of a change in the designated responsible party or contacts for commercial dishwashers within 30 days.

Performance for Special Distinction

In order to receive additional recognition and/or support from EPA for its efforts within the Partnership, the ENERGY STAR Partner may consider the following voluntary measures and should keep EPA informed on the progress of these efforts:

- consider energy efficiency improvements in company facilities and pursue the ENERGY STAR mark for buildings;
- purchase ENERGY STAR qualified products. Revise the company purchasing or procurement specifications to include ENERGY STAR. Provide procurement officials' contact information to EPA for periodic updates and coordination. Circulate general ENERGY STAR qualified product information to employees for use when purchasing products for their homes;
- ensure the power management feature is enabled on all ENERGY STAR qualified monitors in use in company facilities, particularly upon installation and after service is performed;
- provide general information about the ENERGY STAR program to employees whose jobs are relevant to the development, marketing, sales, and service of current ENERGY STAR qualified product models;
- feature the ENERGY STAR mark(s) on Partner Web site and in other promotional materials. If information concerning ENERGY STAR is provided on the Partner Web site as specified by the ENERGY STAR Web Linking Policy (this document can be found in the Partner Resources section on the ENERGY STAR Web site at www.energystar.gov), EPA may provide links where appropriate to the Partner Web site;
- provide a simple plan to EPA outlining specific measures Partner plans to undertake beyond the program requirements listed above. By doing so, EPA may be able to coordinate, communicate, and/or promote Partner's activities, provide an EPA representative, or include news about the event in the ENERGY STAR newsletter, on the ENERGY STAR Web pages, etc. The plan may be as simple as providing a list of planned activities or planned milestones that Partner would like EPA to be aware of. For example, activities may include: (1) increase the availability of ENERGY STAR labeled products by converting the entire product line within two years to meet ENERGY STAR guidelines; (2) demonstrate the economic and environmental benefits of energy efficiency through special in-store displays twice a year; (3) provide information to users (via the Web site and user's manual) about energy-saving features and operating characteristics of ENERGY STAR qualified products, and (4) build awareness of the ENERGY STAR Partnership and brand identity by collaborating with EPA on one print advertorial and one live press event;
- provide quarterly, written updates to EPA as to the efforts undertaken by Partner to increase availability of ENERGY STAR qualified products, and to promote awareness of ENERGY STAR and its message.

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Draft 1 Eligibility Criteria

Below is the **DRAFT 1** product specification for ENERGY STAR qualified commercial dishwashers. A product must meet all of the identified criteria if it is to earn the ENERGY STAR.

1) Definitions: Below are the definitions of the relevant terms in this document.

   A. Dishwashing Machine: A machine designed to clean and sanitize plates, glasses, cups, bowls, utensils, and trays by applying sprays of detergent solution (with or without blasting media granules) and a sanitizing final rinse.

   B. Stationary Rack Dishwasher: A machine in which a rack of dishes remains stationary within the machine while subjected to sequential wash and rinse sprays. This definition also applies to machines in which the rack revolves on an axis during the wash and rinse cycles. The following subcategories of dishwashers are covered by this specification:

      - Under Counter: Similar in design to residential units, these machines are designed to hold a single rack of soiled wares, which are accessed by opening and lowering a single door. A revolving wash arm distributes water for both the wash and rinse cycle. A single tank holds the water and is drained at the end of each cycle. An automatic timer controls each wash cycle. These machines are typically installed under the food preparation workspace.

      - Door Type: Machines equipped with single or multiple doors that slide vertically to load and unload dishes. These machines typically come with a single tank for water and detergent, which are applied evenly to the dishware via two revolving spray arms, one above and one below the rack(s). For purposes of this specification, only single tank door type machines can qualify as ENERGY STAR.

   C. Single Tank Conveyor Dishwasher: A warewashing machine that employs a conveyor or similar mechanism to carry dishes through a series of wash and rinse sprays within the machine. Specifically, a single tank conveyor machine has a tank for wash water followed by a final sanitizing rinse and does not have a pumped rinse tank. This type of machine may include a pre-washing section ahead of the washing section and an auxiliary rinse section between the power rinse and final rinse sections.

   D. Hot Water Sanitizing (High Temp) Machine: A warewashing machine that applies hot water to the surfaces of dishes to achieve sanitization.

   E. Chemical Sanitizing (Low Temp) Machine: A warewashing machine that applies a chemical sanitizing solution to the surfaces of wares to achieve sanitization.

> **Note:** The definitions provided above were taken from various sources including the NSF International Standard for Food Equipment, Glossary of Food Equipment Terminology, NSF/ANSI 170 – 2005, Section 3: Definitions. Stakeholders are encouraged to provide comments as to whether these definitions accurately represent the various product types covered by this specification and if there are other terms that need clarification and should be included in this list.

2) Qualifying Products: Commercial dishwashers must meet the definitions provided in Section 1, above, to be eligible for ENERGY STAR.

Note: In determining which categories to include in this specification EPA chose the most prevalent and simplest designs: under counter; single tank, single rack door type; and single tank conveyor. EPA may consider other product categories given manufacturer interest, prevalence in the marketplace, and data availability.

3) Efficiency Requirements for Qualifying Products: Commercial dishwashers must meet the requirements provided below in Table 1 to qualify as ENERGY STAR.

Table 1: Efficiency Requirements for Commercial Dishwashers		
Category	**High Temp Efficiency Requirements**	**Low Temp Efficiency Requirements**
Under Counter	1.0 gal/rack	1.70 gal/rack
Stationary Single Tank Door	0.95 gal/rack	1.16 gal/rack
Single Tank Conveyor	0.70 gal/rack	0.62 gal/rack

To determine gallons per rack, manufacturers must use the calculations provided below. These calculations are based on gallons per rack conversions provided in the NSF Products and Service Listing for commercial dishwashers at www.nsf.org.

Conveyor Type

$$GPR = \frac{GPH \times RL}{CS \times 60}$$

Door Type

$$GPR = \frac{GPH \times (WT + RT + DT + LT)}{3600}$$

Load Time= 5 seconds for straight through door-type dishwashers.
Load Time= 7 seconds for corner door-type dishwashers.

Undercounter Type

$$GPR = \frac{GPH \times (WT+RT+DT+LT)}{3600}$$

Load time= 30 seconds for undercounter dishwashers.

WT= Wash Time in seconds.
RT= Rinse time in seconds.
DT= Dwell time in seconds.
RL= Rack length in feet.
LT= Load time.
CS= Maximum conveyor speed in feet per minute
GPH= Water use in gallons per hour.

Note: The primary objective of ENERGY STAR is to recognize the most energy-efficient products in the marketplace. In developing a specification, EPA considers the following criteria:

- Significant energy and/or water savings can be realized on a national basis
- Product performance is maintained or enhanced with increased efficiency
- Purchase of high efficiency product will be cost-effective
- Energy and/or water efficiency can be achieved through several technology options; at least one of which is non-proprietary
- Product energy and/or water consumption and performance can be measured and verified with testing
- Labeling would effectively differentiate products and be visible for purchasers

It is not EPA's intention to design a specification that will allow every model to qualify. The performance levels proposed in Table 1 are based on the NSF database and represent approximately the top 25% of models currently available on the market. EPA hopes that over time, the percentage of qualified products will increase as ENERGY STAR penetrates the market. The calculations provided above were taken from the NSF/ANSI 2-2003 Standard to determine gallons/rack for each product type covered by this specification.

4) Test Criteria: Manufacturers are required to perform tests and self-certify those product models that meet the ENERGY STAR guidelines. The test results must be reported to EPA using the Commercial Dishwasher Qualifying Product Information (QPI) Form.

   In performing these tests, partner agrees to use the NSF/ANSI 3-2003 Standard, *Commercial Warewashing Equipment.*

Note: For this Draft 1 specification EPA is referencing the most recent NSF International Standard for measuring commercial dishwasher performance. The NSF Standard is currently recognized and used by manufacturers for purposes of comparing and marketing their commercial dishwasher models. Although the NSF Standard lacks any direct measurement of energy consumption there is a correlation between the water used in the rinse cycle and the energy used to heat that water.

There are test procedures available that do take into consideration the energy used during the dishwashing cycle, however these test methods are not widely used by commercial dishwasher manufacturers. These include the American Society for Testing and Materials' (ASTM) Standard Test Methods for the Hot Water Sanitizing Door Type Dish Machines (F1696) and Conveyor Type Dish Machines (F1920). These test methods are primarily intended to measure and document the *energy and water* consumption (gallons/rack) of the dishwashers under standardized operating conditions (preheat, idle and washing). Since industry is not currently using these test procedures no published data exists in order to use it for purposes of this specification. Furthermore, ASTM test methods only exist for high temp conveyor and door type dishwashers. There are no ASTM test methods available for chemical sanitizing door type and conveyor machines, nor is there one for undercounter machines (high or low temp).

Therefore, EPA is proposing to use the NSF Standard for this first version of the specification but continues to be interested in updating and using these ASTM test procedures to measure direct energy use in the future and encourages manufacturers to be part of this process.

5) Effective Date: The date that manufacturers may begin to qualify products as ENERGY STAR will be defined as the *effective date* of the agreement. The ENERGY STAR Commercial Dishwasher Specification shall go into effect on **TBD**.

> **Note:** Typically, EPA looks to announce a new ENERGY STAR specification in conjunction with an industry trade show or conference. It is EPA's hope that this specification can be finalized by the end of this year. Given this tentative timeline, stakeholders are encouraged to provide EPA with a list of potential venues where the ENERGY STAR Commercial Dishwasher program could be launched. Manufacturers should also comment on the length of time needed to allow for ENERGY STAR qualified models to be available at the time of the announcement.

6) Future Specification Revisions: ENERGY STAR reserves the right to change the specification should technological and/or market changes affect its usefulness to consumers, industry, or the environment. In keeping with current policy, revisions to the specification are arrived at through industry discussions. In the event of a specification revision, please note that the ENERGY STAR qualification is not automatically granted for the life of a product model. To qualify with the energy efficiency criteria of ENERGY STAR, a product model must meet the ENERGY STAR specification in effect on the date of manufacture.